

## **ABSTRACT OF THE DISCLOSURE**

Mechanisms for passive gravity compensation for a system of linkage arms are provided. Gravity compensation is provided through a pair of non-circular gear profiles, with an end of each linkage arm connected to a separate gear set of two non-circular cam bodies, by way of separate cables. Springs in the gear sets provide tension in the cables. The tension in each cable varies according to the angle through which the cam bodies have turned as a result of the co-operating non-circular surfaces of the cam bodies. This, in turn is based on the amount the arms have turned and thereby allows the tension in the cables to compensate for the moments on the arms due to gravity, whatever angles they are at, independently of the angle of the other arm. To achieve this for the first arm of the linkage, the tension in the cable leading to the second arm of the linkage is also transmitted as a torque to the first arm through a pulley mounted on the rotation axis of the first arm.